

Chapter 19 The First Law of Thermodynamics

Example 1:

Calculate the work done by the gas during an isobaric change.

Example 2:

Calculate the work done by the gas during an isovolumetric change.

Example 3:

Calculate the work done by the gas during an isothermal change.

Example 4:

Calculate the work done by a gas during an adiabatic change.

Example 5:

2 moles of a diatomic gas initially at 20 °C and one atmosphere expand adiabatically to 4 times their initial volume. Find the final volume, temperature and pressure.

Example 6:

2 moles of a polyatomic gas initially at 100 °C and one atmosphere first expands adiabatically to 4 times their initial volume. It is then compressed at a constant pressure back to its initial volume. Finally, it is heated at a constant volume to its original pressure. (a) Find the work done by the gas during each process. (b) Find the change in the internal energy of the gas during each process. (c) Find the heat added during each process.